



Project

Revenue Recognition

Topic

Uncertain consideration - measurement

Purpose of this paper

1. The purpose of this paper is to reconsider the proposal in the Exposure Draft *Revenue from Contracts with Customers* for measuring uncertain consideration in the transaction price. The exposure draft proposed that an entity would measure uncertain consideration using a probability-weighted method.
2. This paper does not address the issue of whether a right to consideration exists (addressed in Agenda Paper 10C / FASB Memo 140C). This paper assumes that a right to consideration exists and therefore provides an analysis only of how to measure that right when determining the transaction price.
3. This paper also does not address the proposal in the exposure draft that revenue would be recognised only when the consideration amount could be reasonably estimated (paragraph 38 of the exposure draft). That issue is discussed in Agenda Paper 10E / FASB Memo 140E.

Summary of staff recommendations

4. The staff recommend that:
 - (a) The boards should affirm the core principle proposed in the exposure draft for determining the transaction price (ie that an entity should

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measure revenue in the amount the entity receives or expects to receive from the customer in exchange for transferred goods or services).

- (b) To apply that core principle when the amount of consideration is uncertain, an entity should estimate the consideration at the amount that the entity is more likely than not to receive from the customer unless the uncertain consideration is:
 - (i) frequently occurring, and
 - (ii) homogeneous.
- (c) When the uncertain consideration is frequently occurring and homogeneous, the entity should use a probability-weighted method to determine the transaction price.

Structure of this paper

- 5. This paper is organized as follows:
 - (a) Background and feedback (paragraphs 6-11)
 - (b) Interaction with methods for measuring progress (paragraph 12)
 - (c) Methods for measuring uncertain consideration (paragraphs 13-38)
 - (d) Staff recommendation (paragraphs 39-41)

Background

- 6. The core principle for measuring revenue proposed in the exposure draft is to measure it at the amount of the transaction price, which is defined in the exposure draft as ‘the amount of consideration that an entity receives, or expect to receive...in exchange for goods and services’. The exposure draft proposed that an entity would estimate the amount of consideration that it expects to receive using a probability-weighted (ie expected value) method (paragraph 35 of the exposure draft).

Feedback

7. Nearly all respondents opposed the use of a probability-weighted method for measuring the transaction price in all circumstances. Those respondents explained that the method was unnecessarily complex to apply and to document. They also thought that the probability-weighted method would result in revenue numbers that are not meaningful, either because the probability-weighted method does not predict a possible outcome or because small changes in the estimates create volatility in reported revenues (eg comment letter #965).
8. As an example, respondents highlighted the case when an entity is certain to receive only one of two possible consideration amounts (ie a binary outcome). In these cases, respondents observed that the probability-weighted method would generate a result that is not one of the possible outcomes and that it would therefore not be meaningful. Furthermore, because the probability-weighted amount of consideration would never be one of the possible outcomes, respondents observed that revenue would always be either understated or overstated.
9. For these and other transactions, many respondents suggested that using a measure of 'management's best estimate' would be more appropriate. (The meaning of the term 'best estimate' in the responses is not always clear. The staff have interpreted respondents to mean either the 'most likely' outcome or a simplified expected value, that would be determined by minimal data points based on experience, without assigning probabilities to each outcome.) For many entities, 'management's best estimate' would provide them with flexibility to make an estimate based on their experience and available information, without the documentation that would be required when a measurement technique is specified.
10. Other respondents suggested that revenue should not be recognised until the consideration the entity expects to receive is 'fixed or determinable' as defined in US GAAP.
11. Some respondents acknowledged that a probability-weighted method would be appropriate for measuring uncertain consideration in some circumstances, such as when the population of revenue transactions is large and homogeneous (eg

comment letter #589). However respondents also indicated that the benefits of the probability-weighted method would not always outweigh the costs, in particular because of the additional documentation that would be required.

Staff analysis

Interaction with methods for measuring progress

12. In some contracts, the amount of consideration received from the customer is uncertain, however it varies in accordance with a continuous transfer of goods or services to the customer. In those cases the boards acknowledged that the measure of progress that is most appropriate ‘may coincide with the entity’s rights to payment from the customer’¹ (this issue was discussed by the boards in February 2011). The boards observed that this may occur for example, when the total quantity of goods or services is uncertain. In these cases, the entity would not be required to estimate the entire transaction price, but instead only the amount of the consideration to which it has obtained a right. The boards observed in February that an example of that type of contract may be a time-and-materials contract when the ‘customer agrees to pay a fixed price per incremental good or service’².

Methods for measuring uncertain consideration

13. The core principle of the proposed model requires an entity to measure the transaction price at ‘the amount of consideration that [it] receives, or expects to receive’. To determine the most appropriate method for measuring the amount of consideration that an entity ‘expects to receive’, the staff considered the analysis and measurement models presented in the February 2011 Agenda Paper 2A/Memo 1A (the cross-cutting agenda paper on measuring uncertain future cash flows). That paper explained that the measurement model that would provide the most relevant information to users would depend on the item that is

¹ Paragraph 35, February 2011 Agenda Paper 4B/Memo 137B *Revenue Recognition for Services*.

² Ibid.

being measured. However, practical issues and cost-benefit concerns of applying each model would also need to be considered.

14. Based on the analysis in that paper, the staff observed that two measurement models would provide meaningful and reliable estimates of uncertain consideration in revenue transactions. Those two models were described in Agenda Paper 2A/Memo 1A as the:
 - (a) probability-weighted model (ie expected value); and
 - (b) maximum amount more likely than not to occur (referred to in this paper as the ‘more likely than not’ model).
15. Either model would help to standardise practice because existing standards provide little guidance on how to measure uncertain consideration. For example, IAS 11 *Construction Contracts* indicates that the measurement of contract revenue at fair value would include estimates due to uncertainties, but it provides no guidance on how to determine those estimates. ASC Topic 605-35 *Construction-Type and Production-Type Contracts* provides slightly more guidance, but nevertheless little rigor, because it requires estimated revenue to be determined with ‘careful consideration and the exercise of judgement in assessing the probabilities of future outcomes’ (paragraph 605-35-25-16).
16. To apply *any* measurement model, an entity must have sufficiently reliable data that takes into account the relevant facts and circumstances. This data could be obtained through an entity’s own relevant experience, or the relevant experience of other entities. The staff believes that this information should be readily available for an entity, because this information would be necessary for pricing the entity’s products.

Rejected alternatives

17. The staff also considered the alternative of not specifying a measurement model and instead requiring an entity to estimate expected consideration based on ‘management’s best estimate’, which was suggested by respondents. However the staff observe that the term ‘management’s best estimate’ means different things to different people and it can be very subjective. Therefore measuring uncertain consideration using a ‘best estimate’ may reduce the understandability

and comparability of the estimates. Consequently the staff rejected the alternative of estimating uncertain consideration using ‘management’s best estimates’.

18. The staff also considered whether it was necessary to carry forward the requirement that the transaction price should be ‘fixed or determinable’³ before it could be recognised. The staff rejected this approach because we observe that this concept is complex and not easily applied in practice today. The staff’s view is that carrying forward this complexity would not be an improvement over existing revenue recognition requirements.

Applying the probability-weighted model

19. The staff observe that many respondents were concerned about applying the probability-weighted model to all uncertain consideration amounts, because for many types of uncertain consideration, the model did not generate meaningful results (ie when there are consideration amounts with binary outcomes). Furthermore respondents thought that they would be required to assign probabilities to all possible outcomes, which could be unnecessarily complex. However, this model does not require an entity to consider *all* possible consideration amounts, but instead only a reasonable number of those amounts. The staff believe that this point can be clarified in drafting.
20. Although the probability-weighted model may not be appropriate for all uncertain consideration amounts, some respondents acknowledged that it may be appropriate for *some* uncertain consideration amounts. The staff observe that a probability-weighted model can be applied and would generate useful information only for uncertain consideration amounts that are:
 - (i) frequently occurring, and
 - (ii) homogeneous.
21. The estimate of uncertain consideration would be useful for amounts with these attributes, because the expected value of these uncertain consideration amounts

³ ASC Subtopic 605-15-25-1(a).

would be equal to the sum of the expected values for a portfolio of similar amounts.

22. Consider the following example:

Example 1: Manufacturer's coupons

A manufacturer sells 500 units of Product A to a retailer for CU150. The retailer sells the product direct to customers for CU175. Concurrently at the time of sale of the products to the retailer, the manufacturer issues 200 coupons for a discount of CU10 direct to customers via newspapers and flyers. The retailer accepts the coupon from customers and, thus, the customer pays CU175 per unit without a coupon, and CU165 with a coupon. The retailer submits all coupons to the manufacturer and receives CU10 per coupon submitted.

The manufacturer has sold Product A for many years and regularly distributes a rebate coupon via newspapers and flyers in the same market. Based on its experience, the entity estimates a reasonable number of probabilities that coupons will be returned as follows:

<i>Number of coupons returned</i>	<i>Probability of outcome</i>
150	10%
100	50%
50	40%

Given these probabilities, the entity estimates that 85 $([150 \times 10\%] + [100 \times 50\%] + [50 \times 40\%])$ coupons will be returned. The consideration the entity expects to receive is therefore CU74,150 $[CU75,000 (500 \times CU150) \text{ less } CU850 (85 \text{ coupons} \times CU10)]$.

23. The probability-weighted model was easily applied and generated useful results in **Example 1**, because the uncertain consideration (ie the coupons) occurs frequently and was homogeneous. In other cases however, the probability-weighted model would be difficult to apply, particularly when some amounts of uncertain consideration are unlikely (ie outliers) and highly uncertain. The staff observes that these attributes may be quite common to uncertain consideration amounts because of their nature. In particular, it is the uncertainty around outcomes of the performance that lead to the inclusion of these uncertain consideration amounts as terms of the contract.

24. Uncertain consideration amounts may also be unlikely or highly uncertain because those amounts do not occur often and are heterogeneous (ie the entity has ‘limited experience with *similar* types of contracts’⁴) or because ‘the contract has a large number of possible consideration amounts’⁵. The boards recognised these factors in the exposure draft as factors that may limit an entity’s ability to reasonably estimate the transaction price using a probability-weighted method. In these cases, it may not be practical to limit the application of a probability-weighted model, and instead the boards need to specify a different model.

Applying the more likely than not model

25. The more likely than not model would require an entity to estimate the amount of uncertain consideration in a probability distribution that is greater than 50 per cent likely (ie more likely than not) to be received. This measurement model is also applied to uncertain tax positions in ASC Topic 740 *Income Taxes*.
26. Consider the following example:

Example 2: Bonus

An entity agrees to construct a garage for a fixed fee plus costs. The customer promises to pay the entity a bonus of CU300 if the entity finishes constructing the garage within 30 days. The entity has experience with other similar contracts, but the contracts do not often include a bonus amount and the reasons for the bonus may differ. The entity estimates that the likelihood that it will receive NIL is 30% and the likelihood that it will receive the bonus of CU300 is 70%.

Consequently the amount that the entity is more likely than not to receive is CU300.

27. In **Example 2**, applying the more likely than not model generates what many may perceive as the ‘best estimate’ or ‘most likely outcome’ of uncertain consideration, which were the methods suggested by respondents. However this model would generate more meaningful results for estimating the transaction

⁴ Paragraph 39(c), emphasis added.

⁵ Paragraph 39(d).

price, because it clearly explains what is meant by the estimate and requires more rigour in the calculation.

28. The more likely than not model can also be applied to examples when there are more than two outcomes as follows:

Example 3: Multiple bonuses

Using the same initial facts from **Example 2**: in addition to the initial bonus of CU300 for finishing the construction of the garage within 30 days, the customer promises a bonus of CU200 (cumulative bonus of CU500) if the entity achieves specified costs savings for the materials. As explained in **Example 2** the entity has experience with other similar contracts. However the entity does not have experience working with some of the materials for the project and so it is uncertain if any cost savings will be achieved.

Based on its experience, the entity assigns probabilities as follows:

Bonus amount	Probability of outcome	Cumulative probability of outcome
0	30%	30%
300	45%	75%
500	25%	100%

29. In **Example 3**, the entity’s estimate of uncertain consideration would be CU300, because that is the amount more likely than not to occur, or the first amount that has a greater than 50 per cent chance of being received. (The staff observe that the amount of CU300 is the amount more likely than not to be received, regardless of whether you begin accumulating the probabilities of receiving each amount from 0, or from 500.) When applying the more likely than not model, an entity would not need to consider the probability of amounts beyond the one that is more likely than not to be received (ie in **Example 3**, the amounts beyond CU300). The ability to ignore unlikely amounts in this model would simplify calculations and generate more meaningful results. This is because including the unlikely amounts may introduce a level of uncertainty that may be ‘sufficiently large, [such that] that estimate will not be particularly useful’(paragraph QC16, *The Conceptual Framework for Financial Reporting*).

Benefits of applying the more likely than not model

30. This model introduces a recognition threshold of 50 per cent. This threshold would provide more relevant estimates of the transaction price when there is uncertainty that the amount of consideration will be received. As explained above, this is a common attribute of uncertain consideration.
31. However, the recognition threshold means that amounts that are close to the threshold are highly sensitive to changes in their probabilities. Furthermore, similar contracts could be measured differently. The boards rejected a recognition threshold in the exposure draft on this basis. However, a similar argument could be made against the probability-weighted model because entities may assign different probabilities to the possible consideration amounts, in particular to unlikely or uncertain consideration amounts. This fact was acknowledged by respondents.
32. Practically, an entity may find it easier to apply the more likely than not model when some of the less likely amounts are highly uncertain or when there is a high variability of the amounts of consideration. This is because the more likely than not model would not require an entity to consider the probabilities of expected consideration beyond the amount more likely than not to be received. Consequently, with this model an entity would ignore amounts in the distribution that are unlikely and uncertain.
33. Because amounts that are unlikely and uncertain are ignored when determining the amount more likely than not to be received, the amount of estimated consideration would not change because of errors and immaterial changes in the probability of receiving unlikely amounts (ie outliers). Consider the following revisions to the probabilities in **Example 3**, that would be estimated when the entity is half-way through completion of the construction of the garage:

Bonus amount	REVISED Probability of outcome	REVISED Cumulative probability of outcome
0	30%	30%

300	45% 60%	75% 90%
500	25% 10%	400% 100%

34. In this example, despite the fact that the entity has decreased the likelihood that CU500 would be received, the amount of consideration expected to be received remains at CU300 because that remains the amount more likely than not to be received. In contrast, if the probability-weighted model had been applied to this distribution, the amount of consideration expected to be received would have decreased from the initial estimate. (This is because the probability-weighted model would include unlikely and uncertain amounts.) However, the staff observe that if the likelihood of receiving the additional bonus amount increased such that it was more likely than not to be received, the amount of consideration would be increased.
35. The more likely than not model therefore generates more meaningful results than the probability-weighted model, at least for some uncertain consideration amounts. Additionally, for these amounts the more likely than not model is easier to apply. In particular, the more likely than not model should be applied to uncertain consideration amounts that:
- (i) do not occur often,
 - (ii) are heterogeneous, and
 - (iii) are highly uncertain to be received.
36. The staff observes that these attributes may be common to many uncertain consideration amounts.

Which model to apply?

37. The staff observe that in most cases, the more likely than not model provides more relevant estimates of uncertain consideration, in part because of the recognition threshold inherent in the model. Furthermore, the nature of

transactions with uncertain consideration means that the more likely than not model would be easier to apply than the probability-weighted model. This may be particularly true for transactions with uncertain consideration that is highly uncertain or variable, or may have a ‘large number of possible consideration amounts’ (paragraph 39(d) of the exposure draft).

38. However, for some examples of uncertain consideration, such as those with attributes outlined in paragraph 20, the probability-weighted model would generate meaningful results and therefore the benefits of applying the model may outweigh the costs.

Staff recommendation

39. The staff recommends that the boards should affirm the core principle proposed in the exposure draft for determining the transaction price. Specifically that an entity should measure revenue in the amount the entity receives or expects to receive from the customer in exchange for transferred goods or services.
40. To apply that core principle when the amount of consideration is uncertain, the staff recommends that an entity should estimate the consideration at the amount that is more likely than not to be received from the customer. That is the amount of uncertain consideration in a probability distribution that is greater than 50 per cent likely to be received. An entity would apply the more likely than not model in all cases, unless the uncertain consideration is:
- (i) frequently occurring, and
 - (ii) homogeneous.
41. When the uncertain consideration is frequently occurring and homogeneous, the entity should use a probability-weighted method to determine the transaction price.

Question for the boards

Do the boards agree that:

- (a) When measuring the transaction price at the amount of consideration the entity receives or expects to receive, the entity would estimate the

consideration at the amount that is 'more likely than not' to be received from the customer. Unless the consideration is:

(i) frequently occurring, and

(ii) homogeneous.

(b) When the uncertain consideration is frequently occurring and homogeneous, an entity should use a probability-weighted method to determine the transaction price.